REMARKS

Claims 1-4, 6, 20-34, 42, 46-48, and 77-88 were pending in the application at the time of the July 7, 2010 Office Action. Applicant amends claims 1-3, 21, 29, 33-34, 42, and 46 and cancels claims 47-48 and 84-88 without prejudice.

Claim Rejections under 35 U.S.C. §112, first paragraph

Claims 1-4, 6, 20-34, 42, 46-48, and 77-82 stand rejected under 35 U.S.C. §112, first paragraph because the specification, while enabling (a) methods which use cardiac cells and wild-type Gem protein encoded by SEQ ID NO:1, wherein the wild-type Gem protein blocks an L-type Ca^{++} channel and wherein the blockage results in a shortening of a cardiac QT interval and/or reduction of the heart rate in atrial fibrillation, allegedly does not enable (b) the methods for all excitable cells. See page 3 of the office action. In addition, the office action indicates that the claimed methods encompass *modulating* L-type Ca^{++} channels, while the phenotypes observed in the examples provided in the specification are due to *blockade* of the L-type Ca^{++} channels, not merely their modulation. Finally, the office action indicates that the specification does not enable attenuation of cardiac hypertrophy when a W269G variant of the GEM protein is expressed, because the specification allegedly discloses varied results that show the claimed methods to be unpredictable.

While applicant does not agree with the U.S. Patent and Trademark Office's conclusion regarding the scope of enablement provided by the specification, in order to advance prosecution, applicant has amended claims 1 and 46 to specify that the "excitable cells" are cardiac cells. As recognized in the office action, "a cardiac cell, modulated by the contacted GEM protein will result in the new claim limitations" [*i.e.,* shortening of a cardiac QT interval and/or a reduction of heart rate in atrial fibrillation]. Page 4, lines 16-18.

Claim 1 is also amended to recite "[a] method for at least partially blocking the activity of a calcium channel…." Similar amendments are made to claim 46. Support for these amendments is found throughout the specification, for example, at page 15, lines 26-30.

Applicant does not acquiesce to the PTO's conclusion that the method of claim 42 is unpredictable. The data from Example 4 and Figure 5 clearly support the use of a W296G GEM variant for reduction of cardiac hypertrophy. However, in order to advance prosecution of this application, applicant cancels claims 46-47 and 84-88 without prejudice. Applicant reserves the right to pursue these claims in one or more continuing applications.

Each of the grounds of rejection set forth in the office action under 35 U.S.C. §112, first paragraph have been fully addressed. Please withdraw the rejection *in toto*.

No Disclaimers or Disavowals

Although the present communication may include alterations to the application or claims, or characterizations of claim scope or referenced art, applicant does not concede that previously pending claims are not patentable over the cited references. Rather, any alterations or characterizations are being made to facilitate expeditious prosecution of this application. Applicant reserves the right to pursue at a later date any previously pending or other broader or narrower claims that capture any subject matter supported by the present disclosure, including subject matter found to be specifically disclaimed in this submission or by any prior filing. Accordingly, reviewers of this or any parent, child, or related prosecution history cannot reasonably infer that applicant made any disclaimers or disavowals of any subject matter supported by the present application.

Co-Pending Applications of Assignee

Applicant points to the existence of the following co-owned applications and patents. Related issues may be discussed in these co-owned applications.

Attorney Docket No.	App. No.	Filing Date	Title
439	10092184	03/05/2002	Gene Delivery Compositions and Methods
441	09947953	09/06/2001	Cardiac Arrhythmia Treatment Methods
449	9977865	10/15/2001	Methods and Compositions for Nucleic Acid Delivery
454	10476259	10/27/2003	Biological Pacemaker
459	10678723	10/02/2003	Focal Calcium Channel Modulation
464	60062018	10/10/1997	Gene Delivery Compositions and Methods
465	9169739	10/08/1998	Gene Delivery Compositions and Methods
471	10855989	05/28/2004	Cardiac Arrhythmia Treatment Methods
472	10855892	05/28/2004	Cardiac Arrhythmia Treatment Methods
473	10855805	05/28/2004	Cardiac Arrhythmia Treatment Methods
516	11007315	10/09/2004	Gene Delivery Compositions and Methods
610	11508957	08/24/2006	Cardiac Arrhythmia Treatment Methods
671	11905757	10/03/2007	Focal Calcium Channel Modulation

Attorney Docket No.	App. No.	Filing Date	Title
690	12034077	02/21/2008	Cardiac Arrhythmia Treatment Methods and Biological Pacemaker
696	12089460	04/07/2008	Biologically Excitable Cells
83648	9407945	09/29/1999	Induced Genetic Suppression of Cellular Excitability

Respectfully submitted,
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